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1950 MEETING, CHICAGO

See Announcement regarding research papers on page 4.

[a] For the preparation of this index, Food Technology is indebted to Associate Editor Herman W. Dorn.

Authors of papers intended for publication in Food Technology should request from the Editor's office a copy of a booklet, titled "Suggestions to Authors," and see that their papers are in the form specified therein before they are sent to the editor.

The Institute of Food Technologists assumes no responsibility for statements in contributed articles appearing in Food Technology. Editorials present only opinions of the writers and do not necessarily reflect policies of the Institute of Food Technologists.

CALL FOR RESEARCH PAPERS

1950 Institute of Food Technologists Conference

CHICAGO, ILLINOIS . . . MAY 21-25

Because of the success of the research papers sessions at the San Francisco conference, it has been decided to continue this feature at the 1950 meeting. This is the first and final call for contributions for papers to be presented at the research sessions.

Regulations governing the presentation of papers at the research sessions are as follows:

1. *Deadline for Titles and Abstracts.*—Titles and abstracts should be sent in only when the author(s) expects to actually present the paper at the conference. Titles and abstracts must be in before *February 15, 1950.*

2. *Length of Abstracts.*—Abstracts must be limited to 250 words. If longer ones are submitted, they will be shortened by the committee in charge.

3. *Character of Abstract.*—The abstract should be short, concise, but complete. It should outline the problem under investigation and give a brief summary of the results and conclusions.

4. *Manuscript.*—The manuscript should be of such a character as to be acceptable for publication in Food Technology. Twenty minutes will be allowed for the presentation at the annual conference. I. F. T. will have first claim on all manuscripts for publication in Food Technology. Authors desiring to publish manuscripts elsewhere will be required to secure written permission from the Program Committee. "Suggestions for Authors" may be secured by writing to C. Olin Ball, Editor, Food Technology, Rutgers University, New Brunswick, N. J.

5. *Projection Apparatus, etc.*—If projection apparatus or other special arrangements are needed for the presentation of papers, this information must be provided with the abstract. (See below.)

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(Send to Dr. L. B. Howard, Food Technology Department, University of Illinois, Urbana)

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Proceedings

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News of the Institute

CHICAGO—HOST FOR THE IFT DECENNIAL CONFERENCE

The Chicago Section of the Institute of Food Technologists are hosts to the National Society for the IFT Decennial Conference to be held May 21-25, 1950, at the famed Edgewater Beach Hotel. The first annual conference was held in Chicago in 1940 when IFT had a membership of about 700 food technologists. The Institute has since grown in size to approximately 3,000 members.

In view of the growing influence of food technologists in the continuing development of food and allied industries, it is planned to extend invitations to outstanding leaders in finance and industry for a special luncheon to be followed by a timely and provocative address by an international banker. The purpose for such a gathering is to create a broader appreciation of the significant roles food technologists have already assumed and are prepared to extend in the future development of food industries and the national economy. As a means of emphasizing past and potential capabilities, no technical sessions will be held on Tuesday afternoon May 23 (following the luncheon for their business guests) in order to permit uninterrupted inspection and review of the exhibits by the invited executives, IFT members, and guests.

This special arrangement scheduled for the afternoon of the second day after the opening of exhibits is in recognition of IFT's interest and appreciation for the considerable contribution that their exhibitors make in assuring the continued progress of food processing industries.

Incidentally, the exhibits will be kept open for inspection and personal conferences during the time of any scheduled, technical, or general session from the opening of the program on Monday morning May 22 up until its closing on Thursday afternoon May 25, 1950.

Chairman C. L. Smith of the Chicago Section, IFT, recently announced the committees and personnel for the IFT Decennial Conference. The names of the various chairmen are listed on page 6 of our August issue.

Chairman Lloyd Hall of the Program Committee held a meeting of its members early in October and as a result has projected the following tentative program:

Sunday, May 21, 1950

Council Meeting, 10 A.M.-1 P.M.
Council Luncheon, 1 P.M.-2 P.M.
Council Meeting (cont'd), 2 P.M.-5 P.M.
Committee Meetings, 7:30 P.M.-9:30 P.M.

Monday, May 22, 1950

General Session, 9:30 A.M.-12 P.M.
Babcock Award Luncheon, 12:15 P.M.-1:45 P.M.
Concurrent Sessions, Symposium—Production—Research, 2 P.M.-5 P.M.
Smoker, 8 P.M.

TUESDAY, May 23, 1950

Section Officers' Breakfast, 7:30 A.M.-8:45 A.M.
Concurrent Sessions, Symposium—Production—Research, 9 A.M.-12 P.M.

Edgewater Beach Hotel, Chicago, Home of IFT Decennial Conference.

Luncheon for Business Leaders, 12:15 P.M.-2:15 P.M.
Visit Exhibitors and Personal Conference, 2:15 P.M.-6:00 P.M.
Banquet, Appert Medal Presentation, 7 P.M.

Wednesday, May 24, 1950

Concurrent Sessions, Symposium—Production—Research, 9 A.M.-12 P.M.
IFT Business Meeting and Luncheon, 12:10 P.M.-1:50 P.M.
Concurrent Sessions, Symposium—Production—Research, 2 P.M.-5 P.M.
Steak Dinner and Floor Show, 7 P.M.

Thursday, May 25, 1950

Symposium, "Military Subsistence of the Future," 9 A.M.-12 P.M.
Plant Trips, 1 P.M.

Regional Section News

NORTHERN CALIFORNIA SECTION

On October 6, the Northern California Section heard a talk by Mr. Wayne Ellwood, Manager of the Central Export Department of Food Machinery and Chemical Corporation, San Jose. For a time Mr. Ellwood served as FMCC's representative with the International Machinery Company, with headquarters in Belgium. Mr. Ellwood discussed food processes and food processing plants in Europe and North Africa and also described the organization of Food Technologists in France.

At a meeting of the Executive Committee on October 6, the following were approved for membership in the Northern California Section:

P. W. Alston, Spreckels Sugar.
Joseph Bottini, Calif. Dept. Public Health.
John E. Brekke, Western Regional Research Lab.
Bronson Butler, Duchess Party Foods.
Richard L. Cheney, Glass Container Mfgrs. Institute.
Robert B. Clarfield, California Food & Drug.
Carroll E. Day, Food Machinery & Chemical Corp.
Louis K. Dudak, American Can Co.

(Continued on page 9 following technical papers)

Abstracts

(Continued from page 2)

linear fraction from corn starch. Maltose is present in significant concentrations from the very early stages of the hydrolysis of waxy maize starch by purified pancreatic amylase. Glucose, also, is liberated in the hydrolysis of waxy maize starch by purified maltase-free pancreatic amylase but this sugar is set free in smaller concentrations than maltose and does not appear in the very early stages of the hydrolysis. Waxy maize starch is hydrolyzed rapidly by pancreatic amylase to products of relatively low average molecule weights and of relatively high reducing values. The attack of pancreatic amylase on waxy maize starch appears to be random in the early stages of the hydrolysis, but the accumulation of low molecule weight products in the later stages of the hydrolysis indicates that the action of the amylase is not perfectly random.

352I. On some yeasts isolated from brine.

VERONA, O. *Riv. Italiana Igiene, 8,* 127-41 (1948); *Biol. Abst., 23,* 380, No. 3313 (1949).

Several yeast strains have been isolated from brine of salt-tomatoes. The spoilage of the product is mainly due to *D. guillermondii.* Salt tolerance of every yeast isolated has been tested; the highest tolerance has been shown by *D. tyrocola and D. guilliermondii.* Addition of NaCl to the medium, results in every case in an increase of salt tolerance. Influence of various chemicals as boric acid, salicylic acid and ethyl alcohol upon isolated yeasts has been tested.

NUTRITION

353I. Effect of large-scale methods of preparation on the vitamin content of food.

STREIGHTOFF, F., et al. *J. Am. Diet. Assn., 25,* 687-91 (1949).

Percentage retentions were calculated to express the vitamin content of the cooked product as a percentage of the content of the related raw material. Losses in cooking by each method and differences in vitamin retentions between cooking methods were examined statistically for significance. Raw corn contained per 100 gm.: dry matter, 29.9 (23 to 37) gm.: thiamine, 190 (164 to 227) mcg.; riboflavin, 116 (96 to 133) mcg.; niacin, 1640 (1080 to 2160) mcg.; reduced ascorbic acid, 7.9 (1.3 to 19.2) mg.; and dehydroascorbic acid, 1.25 (.68 to 2.36) mg. Boiled corn retained 102 (86 to 124) % dry matter; 80 (69 to 92) % thiamine; 97 (79 to 120) % riboflavin; 87 (65 to 108) % niacin; and 60 (0 to 106) % reduced ascorbic acid. Holding the boiled corn over boiling water for 1 hour caused no significant losses of any of the nutrients studied. Steamed corn retained 103 (76 to 120) % dry matter; 85 (72 to 94) % thiamine; 101 (95 to 119) % riboflavin; 103 (83 to 117) % niacin; and 62 (2 to 93) % reduced ascorbic acid. Total recovery of vitamins from the boiled corn and the water in which it was cooked was 81, 109, 101, and 61% thiamine, riboflavin, niacin and reduced ascorbic acid respectively. Water from steaming contained less than 1% of the vitamins present in the raw corn. Thus loss of thiamine and ascorbic acid was almost entirely by destruction. Those batches having higher concentrations of ascorbic acid tended to lose, in cooking, larger absolute amounts of ascorbic acid, but lower percentages.

354I. Effect of high-voltage X-rays and cathode rays on vitamins (riboflavin and carotene).

GOLDBLITH, S. A., AND PROCTOR, B. E. *Nucleonics, 5,* 50-8, August, 1949.

Water solutions of riboflavin and petroleum ether solution of carotene have been studied with 3 million volt radiation generated by a Trump generator. This radiation is a potential means of food preservation. Both vitamins were destroyed in varying amounts depending upon the concentration of the solution.

355I. The biological value of corn and wheat proteins in the male infant, with a note on the utilization of D-tryptophan.

ALBANESE, A. A., et al. *J. Nutr., 38,* 215-24 (1949).

It has been found that the nitrogen retention and weight gain of infants maintained on a synethetic diet in which tryptophan- and lysine-supplemented commercial zein constituted the principal source of N, were inferior, by reason of the poor digestibility of the zein, to those obtained on a casein diet fed at the same fluid, caloric distribution and nitrogen levels. A diet in which tryptophan and lysine-reinforced corn gluten provided the major source of protein also proved to be nutritionally inadequate for the infant. In contrast, a lysine-enriched wheat gluten diet supported a nutritional state in the infant comparable to that afforded by evaporated milk formula. There was some evidence that D-tryptophan may have had an untoward nutritional effect.

356I. The synthesis of B vitamins in the horse.

CARROLL, F. D., GOSS, H., AND HOWELL, C. E. *J. Animal Sci., 8,* 290-9 (1949).

Considerable quantities of thiamin, riboflavin, pantothenic acid, nicotinic acid, pyridoxine, folic acid, and biotin are synthesized in the intestinal tract of the horse, the greatest amounts being found in the caecum and large intestine. When fed a B vitamin low-diet, for four months, horses exhibited anorexia, nervousness, incoordination in the hind quarters, loss of weight, and general weakness. Thiamin administration brought about an increase in food consumption, gain in weight, disappearance of incoordination in the hind quarters, decrease in general nervousness, and a lowering of the high pyruvic acid concentration in the blood to the level found in normal horses.

357I. Relative requirement and source of vitamin B_{12} for turkeys and chickens during the later stages of growth.

LILLIE, R. J., et al. *Poultry Sci., 28,* 541-8 (1949).

Beltsville Small White turkey poults reared on wire and slat floors to 20 weeks of age did not grow so rapidly if the 6% of fish meal in their diet was replaced by soybean meal at 8 weeks of age as if it was continued in the diet. Turkeys grew as well if the 6% of fish meal was replaced by meat meal at 8 weeks of age as if they continued to receive fish meal. Growth of turkey poults was retarded if meat meal was fed from hatching time on or if meat meal replaced fish meal at 4 weeks of age. The basal diet contained soybean meal as the sole protein supplement. Experiments with Rhode Island Red baby chicks indicated that meat meal was a less potent source of vitamin B_{12} than was fish meal. Meat meal was an effective supplement, however, when fed as 8% of the diet. The requirement of the turkey poult and of the growing chicken for vitamin B_{12} appears to be less, per unit of feed, during the later than during the early stages of growth.

358I. The growth depression of turkey poults caused by linseed oil meal.

KRATZER, F. H. *Poultry Sci.,* 619-20 (1949).

Turkey poults grew slowly and died when they were fed rations containing from 30 to 47% linseed oil meal. Growth and survival were improved when the linseed oil meal was treated with water or when it was supplemented with pyridoxine, but when water-treated linseed oil meal was fed, supplementation with pyridoxine did not improve growth.

359I. The influence of corn starch upon roughage digestion in cattle.

BURROUGHS, W., et al. *J. Animal Sci., 8,* 271-8 (1949).

A substantial decrease in roughage dry matter digestion was noted when starch was included in the ration in which corncobs or corncobs and limited alfalfa hay made up the roughage part of the ration. This decrease in roughage digestion occurred even though the percent protein in the total ration was widely different. Minor decreases in roughage digestibility were noted in two alfalfa series and no decrease in a third alfalfa series. The variable influence of starch upon roughage digestion can best be explained on the basis of adequate or inadequate nutrients for the growth of microorganisms in the alimentary tract, associated either with starch fermentation or roughage digestion.

(Continued on page 10 following technical papers)

News of the Institute

(Continued from page 7 preceding technical papers)

Stanley J. Hotchner, American Can Co.
Jack B. Jaquith, Pacific Olive Co.
Robert A. Johnson, Golden State Co.
Philip W. Kaufman, Western Crown Cork & Seal.
Basil Knauth, Wilbur Ellis Co.
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Rolie O'Neal, University of California.
Edmond R. Rasnick, Pictsweet Foods, Inc.
Francis Sayre, National Canners Association.
Doris H. Taylor, Western Regional Research Lab.
Carla A. R. Thomas, National Canners Association.

Over 80 new members have joined the Northern California Section this past year.

At this same Executive Committee meeting, a motion was made and approved authorizing the expenditure of about $200 for the purchase of a public address system.

Guests present at the October meeting included:

Frank Gorentz, American Home Foods.
Bob Whitmore, Food Machinery.
Gibson Gray, Workman Pkg. Co.
Bob Gibson, Libby, McNeill & Libby.
Louis Dudak, American Can Co.
Bill Jones, American Home Foods.
Roger Wilson, Continental Can Co.
Allen Mills, Leslie Salt.
Bill Sheal, Libby, McNeill & Libby.
Stanley Hotchner, American Can Co.

Roger Wilson of the Chicago Section, former Chairman, expressed his pleasure at being present at the meeting and extended the greetings of the Chicago Section.

The Section's Annual Meeting, held on December 1 at the Western Regional Research Laboratory at Albany, was an all-day affair as in the past. During the day a program of short research papers was presented. At the dinner meeting in the evening, Mr. W. V. Ellison, Assistant Deputy Regional Director for the Department of Commerce, was the speaker. His talk was entitled "Aggressive Selling—the Need of Americans." Program Chairman for the meeting was Ernest Jacobs, of Lyons-Magnus, Inc. Other members of the Program Committee were Charles Stumbo of the Food Machinery and Chemical Corporation, Frank Lamb of the National Canners Association, and Harry Owens of the Western Regional Research Laboratory.

Hugh Griswold, of the Owens-Illinois Glass Company, has been elected to membership on the Council Executive Committee.

John R. Matchett has been transferred from the Western Regional Research Laboratory at Albany, California, to Washington, D. C.

The Illinois Institute of Technology in Chicago has announced a special 16-week course in food acceptability techniques, directed by Colonel Rohland A. Isker. The course began September 21 and runs through January 25. It includes 16 one-week courses by leaders in the food industries east of the Mississippi.

NORTHEAST SECTION

On November 3, the Northeast Section met at the Massachusetts Institute of Technology, where they heard a talk by Dr. Ernest S. Guenther, Vice-President and Chief Research Chemist of Fritzsche Brothers, Inc., New York. Dr. Guenther has spent part of each of the last twenty years visiting the producing areas of the world, conducting "on-the-spot" experiments and taking colored motion pictures of the domestic producing methods in nearly every country of the world. His lecture was on "The Production of Essential Oils in Africa" and was accompanied by a showing of colored motion pictures taken in the field.

Dr. Sidney L. Feener, Jr. (Aberjona Division, General Foods Corporation, Woburn), Dr. Arthur S. Levine (Food Technology Department, University of Massachusetts), and Dr. Samuel A. Goldblith (Department of Food Technology, Massachusetts Institute of Technology) have been appointed to the Membership Committee of the Northeast Section.

SOUTHERN CALIFORNIA SECTION

On October 19, at the Rodger Young Auditorium, the Southern California Section met for a dinner meeting. Subsequently they were addressed by Mr. L. H. Burt, Products Supervisor of the Cellulose Products Department, Hercules Powder Company, Wilmington, Delaware. The subject of Mr. Burt's talk was "Water-Retaining Agents" and covered the applications of water-retaining agents in the food processing industry, with description of the commonly used water-retaining agents and the potentials of products of the future.

At a meeting on September 14, a motion was made by the Executive Committee and passed with unanimous approval to extend an initation to the National I. F. T. to hold its annual meeting in 1954 in Los Angeles. At this same meeting Milton E. Powell of the Knudsen Creamery Company of California discussed the Army Program of the Reserve Officers Research and Development Group. He stated that the Research and Development Sub-group in Pasadena still had openings for a few more members and that some of the I. F. T. members were probably eligible to take advantage of this opportunity.

Harry J. Deuel, Jr., Chairman of the Annual Conference Committee, and Marsden S. Burns are organizing an excellent program for the fourth annual meeting of the Southern California Section, to be held sometime in February 1950 at the Mayfair Hotel in Los Angeles.

Because of the high cost of mailing, the "Proceedings" of the general meeting held last year are to be distributed as nearly as possible at the Section meetings. Copies were ready at the October meeting for distribution in this way.

The Southern California Section is now publishing a "Monthly Bulletin." The first issue of Volume I appeared in September, 1949. It is reported that the bulletin appears to be a financial and "social" success.

(Continued on page 11)

Abstracts

(Continued from page 8 preceding technical papers)

360I. Rachitogenic effect of some green fodders for sheep.

EWER, T. K. *Brit. J. Nutr., 2,* 406-7 (1949).

There is a relationship between a good season, more feed, greater growth by the sheep and high incidence of rickets, and it appears that the quantity of ultra-violet radiation is of less importance than the occurrence of some specific principle interfering with phosphorus metabolism in the growing sheep, found in highest concentration in green cereals.

PHYSIOLOGY

361I. Body builds fat in aging.

MAYER, J. *Sci. N. L. 56,* 51 (1949).

Aging is characterized by a shift in body chemistry toward building up of fat, rather than protein from food. A change in diet on aging is, therefore, indicated, in order to avoid the possible development of degenerative diseases and malignancies. In cancer cells a sudden or progressive reversal from the adult characteristic of fat synthesis to the youthful characteristic of protein building may take place. A glandular shift from growth hormones, as the sex hormones also takes place on aging.

362I. New clot inhibitor.

Chem. Eng. News, 27, 2162 (1949).

The new compound may completely replace heparin for short-term administration in human beings, its anticoagulant action appearing as rapidly and lasting twice as long as that of heparin. It is not yet known if Paritol can be used safely for more than 5 to 7 days. The drug will be made available in two grades, the cruder grade for injection into experimental animals, preserving whole blood, and replacing sodium citrate or magnesium sulfate in manometers in physiological experiments. The highly purified product of controlled particle size range will be offered for therapeutic use as soon as clinical investigations warrant its release.

FOOD PRODUCTS

CEREALS AND GRAINS

363I. Relationship of physical factors to the granulation of flour.

WICHSER, F. W., AND SCHELLENBERGER, J. A. *Northw. Miller Milling Production Section, 238,* 1a, June 14, 1949.

A study was made of the effect on flours due to different methods of preparing wheat for milling. Lengths of tempering time and amounts of tempering water were varied, as well as comparisons made of conditioning wheat vs. cold water tempering. Of these various conditions, none seemed to alter the characteristics of the flours produced from wheat. Mill stream flours were studied also from the standpoint of granulation. While granulations of the break flours remained the same in relation to one another regardless of the commercial mill sampled, the sizing and middling flours did not necessarily follow the interrelation so closely. The study involving the relationship between a normal (or fine) flour granulation and coarse flours produced data with a significant trend in quality characteristics. Both coarse and fine (or normal) flours from the same primary middling source contained the same ash and protein content. The flour extractions were also the same. In every case throughout the baking test, the coarser flours produced significantly superior results. While flour of normal granulation may produce desirable bread, milling a coarser flour from the same material gives a superior bread. This would indicate that flours may have potential quality beyond the limits now recognized.

DOG FOOD

364I. A comparative study of the nutritive value of dry and canned dog foods.

HOPPERT, C. A., AND HART, E. B. *J. Am. Vet. Med. Assoc., 115,* 118-20 (1949).

A report on the nutritive value of dry and canned foods for growth and maintenance. Experimentation conducted over a six month period disclosed that on the basis of consistent gains in weight and general thriftiness, the one brand of dry dog foods tested was equal nutritionally to better of the five brands of canned dog foods tested. One of the canned dog foods tested was found to be totally inadequate, leaving the animals after six months in exceedingly poor condition.

FROZEN FOOD

365I. Storage of frozen milk.

Ice & Refrig., 117, 45 (1949).

Present research progress has shown the necessity of storage at —10° F. for frozen milk products such as frozen whole milk, frozen concentrated skim milk, and frozen concentrated whole milk. Storage period is three to four months, except for frozen concentrated whole milk for which 8 to 10 weeks is the indicated limit. These products are not produced in significant quantities but research and commercial interest is large. Production hazards that would affect storage life include quality of original milk, careful control of temperatures in pasteurization and vacuum concentration, avoidance of copper-contamination, speed of cooling and freezing.

366I. All-aluminum container serves as cooking, freezing utensil.

PACK. *Parade, 17,* 53, Mar., 1949.

Traypak is a low cost pure aluminum tray available in pint and quart sizes. Lids can be applied with a simple manual tool or by semi-automatic machine. Products can be baked, frozen and re-heated in the tray which may be re-used.

FRUIT

367I. Ripeness and color studies with raw and canned peaches.

KRAMER, A., AND HAUT, I. C. *Canning Tr., 72,* 7-8, Aug., 1949.

The data tend to validate, from a physiological standpoint, the assumption that a loss in green pigment is an indication of ripening of peaches, since every delay in harvest causes a substantial reduction in green pigment concentration, as measured by the spectrophotometric and the fluorometric methods. The data also indicate that within the limits of 60 to 88° F., the duration of storage of the raw fruit is more important in ripening than is the temperature of storage, except that the fruit tends to "color up" (more yellow pigment) better at higher storage temperatures. The data further substantiate the fact that the green pigment is more stable, since it is affected almost not at all, while the yellow pigment is decreased considerably as a result of the canning process. The greater apparent increase in green pigment as a result of processing as measured fluorometrically may be partly ascribed to the loss of yellow pigments which mask the fluorescence of the green pigment.

MEAT AND FISH

368I. Simplified test on the freshness of fish meat. (1) An application of Walkiewicz's method for measuring the freshness of whale meat.

AMANO, K., AND UTIYAMA, H. *Nippon Suissan Gaka Kai Shi, 14,* No. 1, 48-50 (1948); *Comm. Fish, Abst., 2,* 11, July, 1949.

A rapid and simple method of measuring the freshness of raw beef, which was introduced by W. Walkiewicz, was applied to fish and whale meat. Procedure: Finely chopped meat, 5.0 g., is suspended in 50 cc. of distilled water and filtered. The amount of 0.1 cc. of the filtrate is added to 3.0 cc. of 1% $HgCl_2$ (solution A) and to acidic $HgCl_2$ (solution B: 1% $HgCl_2$ containing 0.05% of acetic acid). The coagulation, if it happens, indicates the meat not fitted for food. Results of experiments carried out on shipjack and whale meat are shown.

369I. Electronic fish-finder.

EDDY, D. *Sci. N. L., 56,* 74-6 (1949).

By using the Bendix DR (Depth Recorder) fishermen are able to spot the location and approximate number of fish, their

(Continued on page 12)

News of the Institute

(Continued from page 9)

P. James Rich, formerly Director of Research with Mission Dry Corporation, has accepted a special research assignment with Gentry, Inc.

B. W. Nielsen of the Fruit and Vegetable Chemistry Laboratory, Pasadena, was married to Miss Inger R. Lind on September 25.

Officers of the Coe Chemical Company, which is affiliated with the Rexall Drug Company, are P. K. Bates (President) and G. W. Kusserow (Vice-President).

GREAT LAKES SECTION

New officers and committee appointees for the Great Lakes Section, to serve until May 31, 1950, are as follows:

Executive Committee:

Dr. Roy E. Marshall, Chairman, Department of Horticulture, Michigan State College, East Lansing, Michigan.

Mr. James C. Sanford, Vice Chairman, Basic Food Materials, Inc., Vermilion, Ohio.

Mr. Lewis J. Minor, Secretary, The Huron Milling Company, Harbor Beach, Michigan.

Dr. Pauline C. Paul, Treasurer, Home Economics Department, Michigan State College, East Lansing, Michigan.

Also: Mr. R. B. Wakefield, Gerber Products Co., Fremont, Michigan.

Miss E. M. McIntosh, Gerber Products Co., Fremont, Michigan.

Mr. W. F. Robertson, Dept. Horticulture, Michigan State College, East Lansing, Michigan.

Mr. J. W. Conner, Department of Bacteriology, Ontario Agricultural College, Guelph, Ontario, Canada.

Mr. H. O. Way, H. O. Laboratory Service, Cleveland, Ohio.

Program Committee:
James C. Sanford, Chairman
M. W. Alderman
Joseph Adams
Karl C. Envoldsen
Harry O. Way

Budget Committee:
Pauline C. Paul, Chairman
H. A. Barnby
A. A. Roth

Auditing Committee:
C. N. Hinman, Chairman
O. C. Cessna
R. B. Stover

Qualifications Committee:
Paul A. Wolf, Chairman
H. W. Gray
L. J. Minor

Student Membership Committee:
W. F. Robertson, Chairman
H. W. Schoenlein
M. J. Blish

Public Relations and Publicity:
C. G. Barr, Chairman
Parker Frisselle
L. J. Minor

Committee on By-Laws:
R. B. Marshall, Chairman
A. F. Paustian

Membership Committee:
Corville Beauchamp, Chairman
Mary I. Barber
T. B. Calder
F. J. Erickson
E. M. McIntosh
D. F. Dickinson

1952 I. F. T. Convention at Mackinac Island:
Ray B. Wakefield, Chairman
M. W. Alderman
Karl Envoldsen
F. W. Fabian
Roy E. Marshall
L. S. Roehm
H. C. Scott
G. M. Trout

I. F. T. Employment Committee Member:
F. W. Fabian

Abstractor:
Mary L. Morr

Meetings of the Great Lakes Section have been scheduled as follows:

November 4, 1949, 2 p. m.—Battle Creek Country Club.
January 20, 1950, 2 p. m.—Sheraton Hotel, Detroit, Mich.
April 14, 1950, 2 p. m.—Union Bldg., Michigan State College, East Lansing, Mich.

Dr. E. J. Reedman, food technologist of Montreal, Canada, has been appointed Sales Manager for the International Agricultural Corporation, Ltd.

PHILADELPHIA SECTION

On October 20, the Philadelphia Section was addressed by Dr. Elliott Danzig, Philadelphia Manager of Richardson, Bellows & Henry, Consulting Industrial Psychologists. His topic was "Industrial Psychology: What It Can Do for the Food Technologist." He discussed the application of psychology to everyday relationships with fellow workers and how to obtain the most from human efforts.

The Executive Committee met in August to outline plans and offer suggestions to make the Philadelphia Section more valuable to its members. In the capable hands of the Program Committee Chairman, Everett Meschter, the program is sure to shape up to be of benefit to all. A questionnaire was sent out to members with the object of obtaining expressions of opinion from the entire membership so that the Section might work along lines in which there is the greatest interest.

In October, the Philadelphia Section circulated the first issue of a "Newsletter,' the purpose of which is to keep members informed of what is going on. Henry B. Elkind, Jr., of the American Stores Company, is editor of the Newsletter.

At a business meeting preceding the program of the May 12 meeting, the Chairman of the Section appointed an Auditing Committee consisting of Mr. R. H. Morris and Dr. E. F. Mellon, both of the Eastern Regional Research Laboratory.

Chairmen of other committees of the Philadelphia Section are as follows:

Program Committee—Everett Meschter, American Preserve Co.

House Committee—Harry Dessender, Virginia Dare Co.

Publicity Committee—Earl Graham, Crown Can Co.

Employment Committee—Prof. Walter Obold, Drexel Institute.

Membership Committee—John Deppe, American Stores Co.; Henry Elkind, American Stores Co., Co-Chairmen.

Abstracts

(Continued frmo page 10)

speed and direction of travel, and often their species. Because this device has spotted fish where they were not known to exist previously, commercial catches have been greatly increased by boats so-equipped.

PECTIN—JAMS AND JELLIES

3701. Making "liquid fruit" from peaches, apples.

DAVIS, L. L. *Food Pack., 30,* 33, July, 1949.

Apple and peach "liquid fruit" can be made of soft cooked fruit passed through a pulper with a finishing screen of .002 to .030. This puree is homogenized in a single stage milk homogenizer at 3500 psi and in the case of apple, depectinized by addition of pectinase. The homogenized fruit may be made into a sirup by adding sugar, and into jell by adding pectin to the sirup. The pH of apple sirup need not be adjusted for jell making in the home, but commercial manufacturers will want to adjust the pH of both apple and peach sirup for best jelling. The aroma, essence of the fresh fruit, may be added to the sirups or jells at concentrations even exceeding that present in the fresh fruit, thus increasing market appeal of the product. By addition of essence of fresh fruit other than that of the mother fruit, new flavors and combinations may be had.

3711. Three-elements colloid makes better low-solids gels.

BAKER, G. L., CARROW, J. W., AND WOODMANSEE, C. W. *Food Ind., 21,* 617-19 (1949).

Use of Irish moss extractive with locust bean gum and a potassium salt offers a gel compound to the food industry which may be found valuable for the preparation of gelling powders or the less acid canned products such as spreads, salads, and desserts. Unusual elasticity, strength, and form-retaining capacity are imparted to gels to a degree greatly in excess of the effects predictable from the performance of any pair of the three components used independently. The gels made with the three-element compounds have the ability to set without refrigeration, and they may be remelted and reset at will. Canned gelled tomato juice has been found one of the best products made with the new composition.

PHYSICAL CHEMISTRY

3721. The measurement of starch paste viscosity.

BECHTEL, W. G., AND FISCHER, E. K. *J. Colloid Sci., 4,* 265-82 (1949).

The methods described utilized the Corn Industries viscometer and a modified Stormer viscometer. The former provides a continuous record of the change in flow properties during pasting at a controlled cooking temperature; the latter supplements the data obtained during pasting with a rate of shear-shearing stress curve from which the apparent viscosity, expressed in poises, can be computed at any given rate of shear. The measuring methods described are reproducible and characterize the starches with respect both to rate of pasting and the flow properties of a given paste at different rates of shear. Industrial measurements can be made more precise by these means, and discrepancies in standardization and grading can be largely eliminated.

BEST ARTICLE AWARD ANNOUNCED BY ASRE

A monetary award for technical articles on hermetically sealed refrigeration compressors published in *Refrigerating Engineering,* official publication of the American Society of Refrigerating Engineers, 40 West 40th Street, New York 18, N. Y., has been donated by the Spencer Thermostat Division of the Metals and Controls Corp., Attleboro, Mass.

The award, to be known as the "Klixon Award," shall be made for the most outstanding paper published in *Refrigerating Engineering,* on the subject of the electric system of hermetically sealed compressors. While the award is limited to this specific subject, the field covered includes anything which affects the performance or the life of the electric system or its parts.

The award has been announced by the chairman of the ASRE Awards Committee, D. D. Wile, of Refrigeration Engineering Inc., in Los Angeles. The winner will receive an award of $100 for the best paper during the award year which extends from September 1st to August 31st. The contest will continue for a period of five years starting September 1, 1949. If less than three suitable papers are published during any one year, the award will be held over until at least three papers have accumulated, thereby extending the contest until five awards have been made.

The presentation of the award will be made at Annual Meetings of the ASRE which are held in December, and the ASRE Awards Committee will determine who the recipient will be.

Receipt of the Klixon Award will in no way conflict with other awards for which the paper may be eligible.

Book Review

FOOD INDUSTRIES MANUAL, 16th Edition. Edited by T. Crosbie-Walsh. Leonard Hill Limited, 17 Stratford Place, W. 1, London, England, 1949, 1127 pages.

The 16th edition of Food Industries Manual has been carefully revised by various English authorities in each field of food manufacture. The subject material is presented in a convenient, encyclopedic form. A subject index, new with the 14th edition, is an extra aid in looking up information. Sections on cereals, sugar, confectionery, canning and preserving, meat products, pickles and sauces, the dairy industry, dehydration, edible fats and fatty foods, fruit juice products, storage and refrigeration, handling equipment, packaging, boiler house, and composition of foods make a well rounded manual.

The book is presented from the viewpoint of the English food manufacturer, and, as is well known, their practices are not always the same as those in the United States. It is very complete in its subject matter. Certain subjects are considered which are but little known in this country. One of the book's particular values is in its presentation or different approach to food processing and food analysis. Because of these differences and the manner of presenting the subject, the reviewer believes that the manual may be a worth-while addition to the technical library as a ready reference.

C. S. PEDERSON.

THE UNITED STATES AS THE MAJOR MARKET FOR CANNED TUNA

In the early thirties New York City was the chief center of consumption in the U. S. A.,. which as a country constitutes the only important world market for canned tuna. The major regions where a demand for American-style canned tuna exists are along the Atlantic coast states, Pacific coast states, and in certain urban centers of the Middle West. With the decline of a large foreign-born minority, the relative importance of specialty packs might decrease.

The speculative nature of tuna fishing and the necessity for highly experienced crews and expensive craft and gear to catch the fish makes the cost of the raw material by far the most important item entering into the cost of the final end-product. Canned tuna is a high-cost food and large markets for this product can only be developed in countries where consumer income levels are high.

In the U. S. A. it is considered by some authorities that meat is the closest substitute to tuna and in comparative price studies attention is to be given between meat prices and those for tuna. It will, however, also be necessary to pay attention to an analysis between tuna and salmon prices.

The American-style pack of canned tuna was unknown before the experiments started during the first decade of the 20th century. The market for canned tuna which has expanded so rapidly in the U. S. A. really began to be established from 1914 onwards when experienced marketing firms began producing and selling the product throughout the country.

The consumers' market for canned tuna in the U.S.A. obtains supplies from the following sources:

1. Domestic production of canned tuna from:
   a. Tuna caught and landed by U. S. craft and fishermen;
   b. Tuna imported in a fresh or frozen condition from foreign primary producers.
2. Canned tuna imported from foreign countries processing their own tuna.

The percentage of the canned production of foreign-caught materials to the total canned output rose from 2 percent in 1925 to 10 percent in 1929, and after a decline to 8 percent in 1930 rose again to 13 percent in 1931, on the basis of computations by the U. S. Tariff Commission. In considering the percentage figure for 1931 it is to be borne in mind that in that year there was a sharp decline in the domestic landings of tuna.

Imports of fresh and frozen raw materials are of minor importance in comparison with imports of canned tuna; the latter have a more definite influence on the percentage composition of total supplies. As a result of a large import of canned tuna in 1933, the total contribution of imported fish amounted to 38 percent of total supplies. In 1934-40, with the increase in U. S. production in both landings and canned tuna, together with a leveling off of imports to between 3,000 and 5,000 metric tons, the total contribution of imports to total supplies fluctuated between 11 and 22 percent. In 1941-48 imports of fresh and frozen tuna, as well as canned imports, dropped and, therefore, the percentual contribution of total imports, on the basis of the computations, declined to fluctuate between 2 and 9 percent. These figures show the comparatively insignificant role of imports during the late thirties and the war years as compared with the situation existing during the early thirties. — F. A. O. Fisheries Bulletin, July-August, 1949.

ASRE ISSUES 47th AD SECTION ON REFRIGERATION CONTROLS

The American Society of Refrigerating Engineers has issued its 47th Application Data pamphlet entitled "Refrigeration Controls."

AD 47 contains data on the construction and application of different types of valves and switches used for refrigerant control. The pamphlet is divided into sections and each section explains the function and operation of the following:—automatic expansion valve, thermostatic expansion valve, high side float valve, low side float valve, float switch, evaporator pressure regulator, liquid stop valves, suction stop valves, and injectors and pumps, which are used to obtain complete evaporation of liquid refrigerant in an evaporator.

Williams P. Myers Jr. is the author of this pamphlet and is an application engineer with Alco Valve Company.

Copies may be obtained from ASRE headquarters, 40 West 40th Street, New York 18, N. Y., for 45 cents each.

F. A. O. HERRING MEETING—TECHNOLOGY DISCUSSED

An intergovernmental meeting convened by FAO took place at the Hague, 29 August-2 September. With the Netherlands Government as host, FAO brought together representatives of the major fishing countries of Europe and North America to discuss economic problems related to the production and distribution of herring and allied species. It was decided at the meeting not to take up questions dealing with the European sardine industry.

Belgium, Canada, Denmark, Finland, France, Iceland, the Netherlands, Norway, Sweden, the United Kingdom, and the United States of America, as well as the Economic Commission for Europe and the International Council for the Exploration of the Sea, were represented.

In examining biological and technological factors influencing herring production and the many processes used in its preparation, the meeting placed emphasis on the economic problems of the industry. The loss of many traditional markets, the decline in consumption of herring in certain forms, particularly salted herring, and general trade barriers disrupting international trade were among the topics discussed. The meeting recommended that market research should be carried on through the FAO secretariat in regions where herring by tradition form a part of the diet. It was further recommended that studies should be made of potential market outlets such as Asia and Africa. As

one of the steps in this direction it was recommended that a study also be made of possible methods for processing herring into a form more acceptable to the consumer in these potential markets. It was suggested that FAO consider calling a meeting of fisheries technologists next year to continue an examination of processing methods with a view to encouraging new techniques.

A full report of the meeting is now being prepared and will be available shortly.—*F. A. O. Fisheries Bulletin,* September-October, 1949.

EFFECT OF STORAGE ON QUALITY OF FROZEN FISH

Research at College Park, Md.

After 8 months of storage, the striped bass fillets held at a constant temperature of —10° and 0° F., and at temperatures fluctuating between these two points received satisfactory scores. The scores were essentially the same for the three groups. The appearance and odor in the frozen state were still satisfactory. After thawing, however, a rather fishy odor was apparent. The color, though not as bright as for fresh fillets, still had not become objectionable.

The samples held at a constant temperature of 15° F. and at temperatures fluctuating between 0° and 15° F. had decreased considerably in quality and definitely would be unsalable, with the latter receiving the higher scores of the two lots. Though not so noticeable in the frozen state, the fillets after thawing had a strong fishy odor and were very noticeably discolored. The discoloration does not seem to follow any particular pattern, however, and may be dark, a very flat light color, or have yellow streaks, as sometimes found with fatty fish after a period of storage.

Volatile acid numbers (state of freshness) have increased very little over those for the sixth-month period. It was interesting to note that, while probably not statistically significant, the number for the samples undergoing fluctuating temperatures between —10° and 0° F. falls between the numbers for samples held at a constant temperature of —10° F and constant temperature of 0° F. A similar condition had occurred with the samples held at 0° and 15° F. and fluctuating temperatures between these two points.

* * * *

The frozen fish covered with different wrapping and glazing combinations had changed very little in quality after four months of storage. The fish which were wrapped before freezing and not glazed were showing very slight but almost negligible surface drying.—*Commercial Fisheries Review,* September, 1949.

HOW TO JOIN THE INSTITUTE OF FOOD TECHNOLOGISTS

The procedure for joining the I. F. T. is as follows:

1. Fill out an application blank.

If the applicant resides within the area covered by a regional section, the application form should be obtained by writing to the Secretary of the section. These are listed, with addresses, on the second page of each issue of FOOD TECHNOLOGY. If the applicant resides far from the headquarters of a regional section, the application form should be obtained by writing to the Secretary of the Institute, Suite 954, 222 West Adams Street, Chicago 6, Illinois.

The application blank calls for information regarding the training of the applicant in the field of food technology. Since the question of qualifications is important, it is necesary to obtain the endorsement of three Members. If the applicant is not acquainted with three persons whom he knows to be Members of the Institute, he should ask the person to whom he writes for the application blank to give him the names of several Members in his locality, to whom he might become known.

2. Send the completed application to the office from which the blank was received.

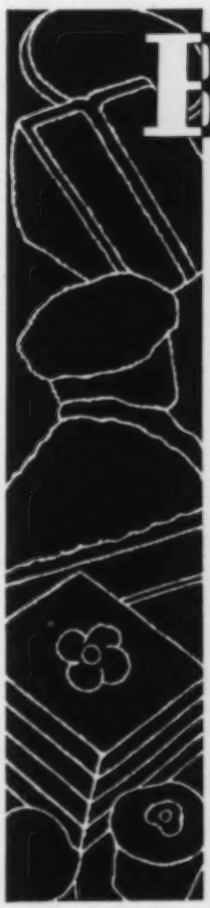
If the application is submitted to the Secretary of a regional section, it is first referred to the section Committee on Membership Qualifications and then sent with the recommendations of that committee to the Secretary of the Institute. The Secretary submits the application promptly to the Institute Committee on Membership Qualifications, which makes a recommendation to the Council as to the type of membership to which the applicant is entitled on the basis of his qualifications. The Secretary secures action by the Council and reports the results to the applicant and to the Secretary of the regional section.

If the application is submitted by the applicant directly to the Secretary of the Institute, the procedure is as described above, following the receipt of the application by the Secretary. In such case, however, if the applicant resides within an area covered by a regional section, the first step of the Secretary upon receipt of the application, usually is to request a recommendation from the Committee on Membership Qualifications of the section.

Your 1950 Membership Dues

1950 membership dues are payable on or before January 1st. Statements were mailed to all members early in November. If you have overlooked sending in your remittance attend to it TODAY.

The Executive Committee of the Council has directed the Secretary to "send a second notice to all delinquent members on January 1st, and to stop Journal subscriptions to those who have not paid by that time. If payment is received after the stopping of a subscription, back issues of the Journal will be furnished only at the current sale price of 75c per copy."



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